Evolution via mutation without selection : Algorithm

Divide population of size N equally between two types of individuals A and B represented by the numbers 0 & 1

Define mutation rates u1 and u2

Start loop over generations (total =T)

      Start loop over entire population (size=N)

      Check if the individual chosen is of type 0 or type 1

      If type 0, mutate individual from 0 to 1 with probability u1

        Pick a random number **r** between 0 and 1

        If **r < u1**, mutate individual from 0 to 1, else leave unchanged

      If type 1, mutate individual from 1 to 0 with probability u2

        Pick a random number **r** between 1 and 0

        If **r < u2**, mutate individual from 1 to 0, else leave unchanged

    Close loop over population

Calculate frequency of type 0 and type 1 in the population

Record generation versus frequency data

Close loop over generations

Assignment 1

1. Run simulations using u1=0.003 and u2=0.001 for 3 different population sizes N=100, 1000, 10000

2. Repeat simulation for N=1000 using u1=0.07 and u2=0.001; Use T=1500 in both cases.

Verify if the equilibrium value for frequency of type 0 and type 1 matches with theoretical predictions